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ABSTRACT

This learning module on evaluating students in performance-based vocational education (PBVE) programs is one of nine developed for use in training administrators, teachers, and prospective teachers in the utilization of Vocational-Technical Education Consortium of States (V-TECS) catalogs of performance objectives, criteria-referenced measures, and performance guides. Readings are provided on the following subject areas: the role of evaluation in PBVE; evaluation via performance testing; evaluating cognitive learning via written tests; evaluating affective learning; grading alternatives; and recording results. Examples of module behavioral objectives are these: be able to give the basic measure of evaluation in a performance-based system; the three major types of performance evaluation; the characteristics of six levels of learning; the five major types of objective tests; the major records that are used to chart student progress in a performance-based system; and the major evaluation devices for measuring attitudes. A glossary of terms, a glossary self check, and five self-check lists on module readings are provided. (An instructor's handbook--CE 017 440--for use with all the modules contains the checkout activity, a multiple choice test keyed to the behavioral objectives stated at the beginning of the module. The modules are designed for use with individuals or with groups.) (JH)

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ED159388

Implementing Performance-Based Vocational Education
Utilizing V-TECS Catalogs

MODULE 6

EVALUATING STUDENTS IN PERFORMANCE-BASED VOCATIONAL EDUCATION PROGRAMS

Produced by

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CE 017 446

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INTRODUCTION

Objective student evaluation has long been a professional goal of dedicated vocational teachers. A move toward performance-based education provides the instructor with a solid foundation for objective student evaluation. You will recall that in module one performance-based education was defined as an educational program in which tasks (or skills) to be acquired and demonstrated by the student as well as the criteria (standards) to be applied in assessing the performance of such tasks (skills) are made explicit in advance. The student is held accountable for meeting these criteria. More specifically, you will recall that in module two a criterion-referenced measure was defined as an exercise based upon a performance objective and designed to measure attainment of the objective.

Ideally, student evaluation in performance-based education is based on preset standards with which the student performances are compared. Realistically, however, our current system frequently requires that students receive a numerical and/or letter grade.

This module is designed to acquaint you with the role of evaluation in performance-based vocational instruction, strategies for evaluating performance, alternative grading methods and suggestions for record keeping in performance-based vocational education.

DIRECTIONS

Module 5 should be completed before beginning work on this module.

Read the objective. If you think you can accomplish the objective, turn to the Check-out Activity page 37 and follow the instructions.

If you feel you are not able to accomplish the objective now, turn to the Learning Activities. Begin the Learning Activities, and as soon as you feel you are ready, turn to the Check-Out Activity and follow the instructions.

OBJECTIVE

Given instructional materials developed for this module, the participant will be able, with 100% accuracy, to select on a multiple choice test:

1. the basic measure of evaluation in a performance-based system.
2. the three major types of performance evaluation.
3. the characteristics of six levels of learning.
4. the five major types of objective tests.
5. the major characteristics of affective evaluation.
6. the major characteristics of five grading alternatives.
7. the major records that are used to chart student progress in a performance-based system.
8. the major characteristics of the three forms of performance evaluation checklists.
9. the major evaluation devices used for measuring attitudes.

LEARNING ACTIVITIES

1. READ the Glossary of Terms for Module Six.

2. CHECK YOUR KNOWLEDGE by completing Self-Check I – Glossary Self-Check.

3. READ Section I – Role of Evaluation in PBVE.

4. READ Section II – Evaluation Via Performance Testing.

5. CHECK YOUR KNOWLEDGE by completing Self-Check II – Performance Testing.

6. READ Section III – Evaluating Cognitive Learning Via Written Tests.

7. CHECK YOUR KNOWLEDGE by completing Self-Check III – Evaluating Cognitive Learning.

8. READ Section IV – Evaluating Affective Learning.

9. CHECK YOUR KNOWLEDGE by completing Self-Check IV – Affective Testing.

10. READ Section V – Grading Alternatives.

11. CHECK YOUR KNOWLEDGE by completing Self-Check V – Grading Alternatives.

12. READ Section VI – Recording Results.

13. Turn to the Check-Out Activity, page 37 and follow instructions.

GLOSSARY OF TERMS – MODULE 6

Diagnostic test – a test given to a student during the instructional process to aid in identifying student strengths and weaknesses relative to a given subject under study.

Evaluation checklist – supplementary aid to the performance objective standard which is used when a specified product or process is highly subjective.

Norm-referenced test – a test used to determine how well a student performs a given task relative to other students in a class.

Objective evaluation – a measurement involving the use of facts without distortion by personal feelings and/or prejudices.

Pre-test – a test given prior to instruction to determine technical skills and knowledge a student possesses in a given subject.

Process evaluation – a form of evaluation that rates each step of a task.

Product evaluation – a form of evaluation that rates the end result of a student's effort.

Subjective evaluation – an evaluation influenced by the evaluator's personal experiences and/or prejudices.

SELF-CHECK I

GLOSSARY

Directions: Match the following terms with their appropriate description. Record your answers on a separate sheet of paper. Check your responses using the answer key at the bottom of the page.

DEFINITIONS	TERMS
1. – supplementary aid to the performance standards which is used when a specified product or process is highly subjective.	a. Diagnostic test
2. – a test given prior to instruction to determine technical skills and knowledge a student possesses in a given subject.	b. Evaluation checklist
3. – a test used to determine how well a student performs a given task relative to other students in the class.	c. Norm-referenced test
4. – a test given to a student during the instructional process to aid in identifying student strengths and weaknesses relative to a given subject under study.	d. Pre-test
5. – a form of evaluation that rates the end result of a student's effort.	e. Product evaluation
6. – a form of evaluation that rates each step of a task.	f. Process evaluation
7. – an evaluation influenced by the evaluator's personal experiences and/or prejudices.	g. Objective evaluation
8. – a measurement involving the use of facts without distortion by personal feelings and/or prejudices.	h. Subjective evaluation

SELF-CHECK I

Glossary Checklist

Answer Key

1. b, 2. d, 3. c, 4. a, 5. e, 6. f, 7. h, 8. g.

SECTION I

ROLE OF EVALUATION IN PBVE

Student evaluation in performance-based vocational education fulfills three important functions. First, evaluation provides the student with feedback regarding his/her performance relative to the standard of proficiency which has been preset in the criterion-referenced measure. In addition, data which is collected by the instructor during the assessment procedure can be useful to the instructor in grade assignment if the system requires more than a pass/fail evaluation. A third function of student evaluation is that the assessment provides the course instructor with feedback regarding the success or failure of his/her instructional design.

Three basic types of assessment are recommended in order to satisfy the three functions identified above. These assessments are pretesting, diagnostic testing and performance testing.

Pretesting students to determine prerequisite skills they bring to the learning situation is highly desirable. Results of pretesting provide the basis for decision making. If a student possesses the skills necessary to perform a task, he/she may be certified as having successfully performed the task and move to another task without having to go through the learning activities designed to help him/her master that particular task.

Diagnostic testing is used primarily to ferret out the areas in which the student needs help as he/she attempts to master a task. Diagnostic tests, then, aid the instructor in identifying problem areas for the student. With this information, the instructor can adjust instruction to meet unanticipated individual student differences.

Criterion-referenced tests are used to determine as accurately as possible when a student has reached an acceptable level of performance. In criterion-referenced testing the student is tested on how well he/she performs a task relative to a preset standard of proficiency. On the other hand, norm-referenced tests determine how well the student performs a given task relative to other students in the class. Butler differentiated between the two tests most succinctly when he stated that criterion-referenced testing separates the students along a time scale while norm-referenced testing separates students along a proficiency scale. [1]

This is not meant to imply, however, that criterion-referenced testing does not allow for individual differences in performance. The extent of difference is not nearly so great as that in the norm-referenced situation. In criterion-referenced testing there is a preset proficiency level. Even though this level may be quite high, instructors will find there is room at the top for a rank ordering of students.

For morale as well as motivational reasons, the student who surpasses the preset minimum proficiency level might receive a superior rating or even highly superior. The student who meets the standard would receive a satisfactory rating, while a student who does not reach the minimum level of proficiency merits an incomplete rating. This incomplete rating would, of course, be a temporary rating indicating that the student will be given an opportunity to work toward a satisfactory performance level.

Section II will address process and product evaluation. Section III will deal with methods for evaluating cognitive aspects of performance. Section IV will address approaches for assessing affective aspects of performance. In Section V, alternative grading methods are discussed.

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[1] F. Coit Butler, *Instructional Systems Development for Vocational and Technical Training* (Englewood Cliffs: Education Technology Publications, Inc., 1972), p. 98.

SECTION II

EVALUATION VIA PERFORMANCE TESTING

Student evaluation in performance-based instruction is based on criterion-referenced measures. A criterion-referenced measure, you will recall, is an exercise based upon a performance objective and is designed to measure attainment of the objective. When properly written, criterion-referenced measures give clear, complete directions to the student; require performance of the same behavior specified in the performance objective; consist of compatible terminology and require the same conditions as specified in the objective. Performance-based evaluation generally consists of process testing, product evaluation, or a combination of the two.

Process Evaluation

Process testing is used to evaluate each step of a task while the student performs the task. Thus, the student is rated on the degree of acceptability of each step. Process evaluation is the most time-consuming of the three types of performance testing; however, it yields the most comprehensive evaluation results. Following you will see an example of a task requiring process evaluation. The example, taken directly from a V-TECS Catalog, includes a process evaluation checklist. Note that the items in the checklist mirror steps in the performance guide.

Task: Give parenteral medications

Criterion-Referenced Measure:

Provided a patient, physician's orders, parenteral medications, and the necessary equipment and supplies, administer parenteral medications subcutaneously, intradermally, intramuscularly or using Z–track technique. The procedure will be evaluated in accordance with a performance checklist. All applicable checklist items must be rated "acceptable."

Performance Guide:

1. Compare physician's orders with patient's medication records.
2. Wash hands.
3. Assemble equipment and supplies.
4. Select proper medication and check label as medication is:
   a. Removed from storage area.
   b. Drawn into syringe.
   c. Replaced to storage or container is discarded.
5. Compare label and patient's medication record.
6. Calculate correct dosage.
7. Prepare syringe.
8. Draw up proper dosage using sterile technique.
9. Expel air from syringe.
10. Return container to storage or discard, as appropriate.
11. Place medication and medicine card together on medicine tray, if applicable.
12. Take medication to patient's bedside.
13. Greet patient and verify patient's identification.
14. Identify and prepare injection site.
15. Expel air from syringe.
16. Administer medication in one of the following ways:
    a. Subcutaneously:
       (1) Hold syringe between thumb and index finger.
       (2) Insert needle at 45 degree angle.
       (3) Aspirate plunger.
       (4) Inject medication.
       (5) Remove needle and massage area.

b. Intradermally:
   (1) Support patient's arm with anterior portion upward. Hold skin on forearm tight.
   (2) Hold syringe with bevel of needle facing upward.
   (3) Insert needle at 10 – 15 degree angle (almost parallel to skin) so that only bevel of needle penetrates the skin.
   (4) Inject medication slowly so that white wheal appears.
   (5) Withdraw needle.
   (6) Wipe gently with no pressure.

c. Intramuscularly:
   (1) Hold syringe between thumb and index finger.
   (2) Insert needle at 90 degree angle.
   (3) Aspirate plunger.
   (4) Inject medication.
   (5) Remove needle and massage area.

d. Z–track technique:
   (1) Draw 1/2 cc of air into syringe.
   (2) Retract skin laterally in gluteal area.
   (3) Insert needle at 90 degree angle using at least a two inch needle.
   (4) Aspirate plunger.
   (5) Inject medication and wait 10 seconds.
   (6) Remove needle.
   (7) Release skin. DO NOT MASSAGE AREA WHEN USING Z–TRACK TECHNIQUE

17. Apply bandaid, if necessary.
18. Provide for patient's comfort.
19. Remove and dispose of equipment properly.
20. Record procedure.

PROCESS CHECKLIST: Give Parenteral Medications

ACTIVITY	RATING ACCEPTABLE	UNACCEPTABLE
1. Identified medicine, dosage, time and route of administration.	☐	☐
2. Washed hands.	☐	☐
CHECKED MEDICATION LABEL		
3. When medication was removed from storage.	☐	☐
4. As medication was drawn into syringe.	☐	☐
5. As medication was replaced to storage or container discarded.	☐	☐
PREPARED MEDICATION FOR INJECTION		
6. Calculated correct dosage.	☐	☐
7. Prepared syringe without contamination.	☐	☐
8. Placed medication and medicine card together on medicine tray.	☐	☐

9

PROCESS CHECKLIST: Give Parenteral Medications
(Continued)

ACTIVITY	RATING ACCEPTABLE	UNACCEPTABLE
PREPARED PATIENT FOR MEDICATION		
9. Greeted patient and verified patient's identification.	☐	☐
10. Prepared injection site.	☐	☐
11. Expelled air from syringe.	☐	☐
GAVE SUBCUTANEOUS INJECTIONS		
12. Inserted needle at 45 degree angle.	☐	☐
13. Aspirated plunger before injecting medication.	☐	☐
14. Removed needle and massaged area.	☐	☐
GAVE INTRADERMAL INJECTION		
15. Held skin on forearm tight.	☐	☐
16. Inserted needle at 10 – 15 degree angle with bevel of needle upward.	☐	☐
17. Injected medication slowly until white wheal appeared.	☐	☐
18. Withdrew needle and wiped area gently with no pressure.	☐	☐
GAVE INTRAMUSCULAR INJECTION		
19. Injected needle quickly and firmly at 90 degree angle.	☐	☐
20. Aspirated plunger before injecting medication.	☐	☐
21. Removed needle and massaged area.	☐	☐
GAVE INJECTION USING Z–TRACK TECHNIQUE		
22. Retracted skin laterally.	☐	☐
23. Inserted needle at 90 degree angle.	☐	☐
24. Aspirated plunger.	☐	☐
25. Injected medication and waited 10 seconds.	☐	☐

	RATING	
	ACCEPTABLE	UNACCEPTABLE
26. Removed needle and released skin without massaging area.		
COMPLETED PROCEDURE		
27. Applied bandaid, if necessary.		
28. Removed and disposed of equipment.		
29. Recorded procedure.		

Product Evaluation

Product evaluation is used to evaluate the student on the degree of acceptability of the completed product. It is less time consuming; however, the instructor cannot easily determine if the student has performed each step of the process correctly. Instead, the instructor rates the final product, such as a cake or display window.

The following task, taken from the Food Management, Production, and Services Occupations catalog is an example of a performance in which product evaluation is appropriate. Here you will note the checklist consists of items which evaluate the product, not the process.

Task: Cook vegetables by boiling, simmering and steaming.

Criterion-Referenced Measure:

Given necessary equipment, supplies, and vegetables (fresh, frozen, canned or dehydrated as selected by the instructor), plus standardized recipes for boiling, simmering, and steaming vegetables, prepare a minimum of one vegetable dish using each method. A checklist will be used to rate performance.

Performance Guide:

1. Gather supplies and equipment.
2. Prepare vegetables for cooking.
3. Add required amount of liquid and seasoning in cooking pot.
4. Heat liquid to boil, simmer, or steam as required.
5. Place vegetables in cooking pot at required time for method used.
6. Cook covered or uncovered as required for vegetable type.
7. Cook for required length of time.
8. Remove from heat.

PRODUCT CHECKLIST

ACTIVITY	RATING ACCEPTABLE	UNACCEPTABLE
EXTERIOR APPEARANCE		
1. Consisted of regular, unbroken, even-shaped pieces.	☐	☐
2. Consisted of correct size.	☐	☐
3. Had good color, was bright, even, clear, fresh; not dull, pale or muddy.	☐	☐
4. Contained proper moistness; not dry, watery, or shriveled.	☐	☐
INTERIOR		
5. Had good texture.	☐	☐
6. Had good color.	☐	☐
PALATABILITY		
7. Had good flavor that was pleasant and true; not raw or strong; well-seasoned, not burned.	☐	☐
8. Used correct temperature.	☐	☐
PORTION		
9. Provided adequate portion.	☐	☐
10. Served attractively.	☐	☐

Combination Evaluation

Finally, combination evaluation is used when the instructor evaluates critical processes before examining the final product. Process and product are observed. This evaluative procedure has instructor checkpoints built in so that critical processes are not ignored prior to the final product review.

The following task taken from the Tractor Mechanics Catalog provides an illustration in which instructor checkpoints within a process checklist are valuable and critical. The instructor uses the checkpoints on the checklist to inform the student that the instructor is to evaluate the process at specified points in the performance. Product evaluation, only, would not provide adequate assessment in this case.

Task: Install rear-main oil seals

Criterion-Referenced Measure:

Given a mechanic's tool set, a torque wrench, a new gasket, and a seal, install rear-main oil seal. The new seal will be correctly placed and will hold oil. Other parts will be correctly placed and tightened.

Performance Guide:

1. Remove oil pan and clean same.
2. Remove all traces of oil pan gasket from block.
3. Remove rear main bearing cap.
4. Loosen other main bearings to allow crankshaft to drop slightly.
5. Pull out old seal.
6. Lubricate top half of new seal and put in place.
7. Coat outside of new seal with sealing compound and put in place in rear main cap. Take care not to get compound on lip of seal.
8. Lubricate lip of seal with engine oil.
9. Put rear main cap (with seal) in place.
10. Torque main bearings.
11. Reinstall oil pan wth new gasket and sealing compound.

COMBINATION CHECKLIST
(Process/Product)

ACTIVITY	RATING	
	ACCEPTABLE	UNACCEPTABLE
1. Removed oil pan and cleaned same.	☐	☐
2. Removed all traces of oil pan gasket from block.	☐	☐
3. Removed rear main bearing cap.	☐	☐
4. Loosened other main bearings to allow crankshaft to drop slightly.	☐	☐
* 5. Pulled out old seal.	☐	☐
* 6. Lubricated top half of new seal and put in place.	☐	☐
7. Coated outside of new seal with sealing compound and put in place in rear main cap. Took care not to get compound on lip of seal.	☐	☐
8. Lubricated lip of seal with engine oil.	☐	☐
* 9. Put rear main cap (with seal) in place.	☐	☐
*10. Torqued main bearings.	☐	☐
*11. Reinstalled oil pan with new gasket and sealing compound.	☐	☐

*Have instructor check your work before proceeding.

SUMMARY:

Properly stated criterion-referenced measures outline for the student exactly how he/she will be tested.

Process test items tell the student what steps are going to be evaluated. Example: Evaluate each step of a task, such as measuring windows to determine the amount of fabric needed for draperies, or perform receptionist duties. Performance guides are a source of test items for the instructor. Product checklist items tell the student how the instructor will evaluate the finished product. Example: Evaluate a final end product, such as a completed memorandum, or a plumb brick wall. Combination checklist items with instructor checkpoints alert the student to allow the instructor to check the product at identified points before the product is completed. Example: Evaluate critical processes and product, such as spread icings on cakes – check to see if middle layer is frosted and crumbs are brushed before evaluating the final product – the iced cake. Or, install asphalt shingles – check to see if nailing was done properly before installing the second layer of shingles. A shingled roof, for example, is the end result or product.

The type of evaluation will depend upon the task, material and non-material resources available.

SELF-CHECK II

Performance Testing

Questions: 1-3

Directions: Examine the following pages from six V-TECS Catalogs which are marked "A," "B," "C," "D," "E," and "F." Determine which of the tasks require product, performance, or combination types of evaluation. Record your answers on a separate sheet of paper.

1. Product _____
2. Process _____
3. Combination _____
   (Process/Product)

Answer Key

1. B, F
2. C, E
3. A, D

SELF-CHECK II

A

Duty: MAINTAINING AND SERVICING BASIC ENGINE

Task: Measure piston-ring end gap

Performance Objective

Given a piston ring and feeler gauge, measure the piston-ring end gap. Measurement should agree with that of instructor. (1)

Criterion-Referenced Measure

Measure a piston-ring end gap in a laboratory setting.

Performance Guide

1. With piston removed, carefully compress a ring and insert it in the cylinder.
2. Be sure the ring is lined up in the cylinder by tapping it down about one inch with the top of an inverted piston.
3. Measure the gap between the ends of the ring with a feeler gauge, and record reading.
4. Take readings at one inch intervals down to the lowest point of ring travel. The smallest reading is the ring end gap.

B

Duty: PERFORMING COMPUTATIONAL CLERICAL ACTIVITIES

Task: Keypunch Data

Performance Objective

Given 15 business documents containing accounting data plus format instructions, keypunch the data onto cards and verify. The data must be punched with 100% accuracy in correct format. (1)

Criterion-Referenced Measure

Using the material provided by your instructor, keypunch the data.

Performance Guide

1. Prepare keypunch for punching.
2. Put cards to be punched in hopper.
3. Prepare program (drum) card if necessary.
4. Arrange source documents in proper sequence.
5. Punch cards.
6. Verify cards.
7. Repunch cards as needed.

C

Duty: PROVIDING AIRWAY CARE AND PULMONARY RESUSCITATION

Task: Administer Bag-mask Resuscitation

Performance Objective

Given a bag-mask resuscitator, manually ventilate a simulated patient. An open airway must be maintained, the mask must form a no-leakage seal, and ventilation must be at a rate of 12 to 15 breaths per minute with the bag squeezed once every five seconds. (15, 68) (10, 62-63)

Criterion-Referenced Measure

Your instructor will supply a simulated patient. Perform manual bag-mask ventilation.

Performance Guide

1. Place mask on patient:
   a. Mold face piece to patient's face
   b. Assure mask forms a no-leakage seal.
2. Position patient's head:
   a. Secure mask in place
   b. Position patient's chin upward.
3. Administer resuscitation:
   a. Squeeze bag firmly
   b. Observe patient's chest rise
   c. Allow bag to re-expand
   d. Assure no mask leakage
   e. Inspect for patient vomiting
   f. Remove any vomitus
   g. Repeat steps a to c above

D

Duty: BLEACHING AND TINTING HAIR

Task: Apply Temporary Rinse

Performance Objective

Given a patron desiring a temporary rinse and necessary equipment and supplies, apply temporary rinse to patron's hair. The completed application must result in an even color distribution and a satisfied patron. (1)

Criterion-Referenced Measure

Using the temporary rinse provided by your instructor, apply the rinse to patron's hair.

Performance Guide

1. Sanitize hands.
2. Discuss rinse color with patron.
3. Drape patron.
4. Give patron a plain shampoo.
5. Towel dry hair.
6. With patron resting over shampoo bowl, apply rinse around front hairline using bottle applicator.
7. With patron in sitting position apply rinse:
   a. Around nape hairline
   b. Up back of head to crown area in layers.
   c. To crown area in layers.
8. Check hair for complete coverage and comb color through hair.
9. Leave rinse on 2 to 5 minutes depending on manufacturer's directions and desired color.
10. If directed by manufacturer, rinse hair with warm water until water runs clear.
11. Hair is now ready for setting and styling.

NOTE: Record procedure in customer file.

E

Duty: OPERATING GAS WELDING EQUIPMENT

Task: Silver Braze Ferrous Metals With Gas Equipment

Performance Objective

Given gas welding equipment, work order, ferrous metal flux and silver brazing alloy; braze joint according to work order. Visual inspection will show:

a. complete joint penetration
b. 100% coverage of joint surfaces
c. complete adherence to base metal (1)

Criterion-Referenced Measure

Silver braze ferrous metal with gas equipment according to work order specifications.

Performance Guide

1. Select safety equipment.
2. Clean and flux the joint.
3. Select correct size welding tip.
4. Turn on gas and adjust flame.
5. Heat metal, flux and apply brazing alloy.
6. Cool, clean, and check joint for holes and smoothness.

F

Duty: PERFORMING CONSTRUCTION DUTIES

Task: Attach Weights to Draperies

Performance Objective

Given a pair of unhemmed draperies, covered weights or fabric for covering and uncovered weights, thread, needle, and scissors, attach weights at the corners and seams of the draperies. The weights will be completely covered with fabric, securely fastened at the corners and at each seam, the same distance from the bottom and will not be visible from the outside. (6, 165/7, 16)

Criterion-Referenced Measure

Attach weights to a pair of draperies.

Performance Guide

1. Cover weights with drapery or lining fabric or use commercially covered weights.
2. Stitch weight to bottom edge of drapery at corners and each seam before it is hemmed.
3. If drapery is wide you may need to tack weights inside the bottom hem fold at regular intervals as well as the corners and each seam.

SECTION III

EVALUATING COGNITIVE LEARNING VIA WRITTEN TESTS

Evaluation serves an integral function in the teaching/learning process. Namely, goals and objectives form a learning structure while evaluation determines the integrity of this design. What are the levels of this structure? Bloom[1] provides these learning levels.

Notice the hierarchy of the learning levels. As a teacher, you identify these levels daily in the classroom. When you evaluate a student, you measure him or her against your course objectives. Simultaneously, you measure the effectiveness of your learning materials. In order to evaluate effectively, the following learning levels are reviewed.

Knowledge Level – Emphasizes recognition. Test items usually begin with words such as: define, recall, or list. Example: The "last in, first out" method of proving inventory is ____ _____.

Comprehension Level – Emphasizes meaning. Test items usually begin with words such as: illustrate, or give an example. Example: Give an example of a nail used for asphalt shingles.

Application Level – Emphasizes effect. Test items usually begin with phrases such as: "How will this affect," or "What would you do"? or "Choose." Example: How does an expense account affect income when preparing a trial balance?

Analysis Level – Emphasizes the relationships between ideas. Test items usually begin with words such as: which, or analyze. Example: Which of the following is not a correct technique for setting a table?

a. Touch only the handle when placing silverware on the table.
b. Wash hands before handling glassware or dishes
c. Use cracked or chipped dishes if there are minor flaws
d. Hold glasses at the bottom

Synthesis Level –Emphasizes creativity. Test items usually include such words as: think, develop a plan, or write a paper. Example: Develop a rationale for using passive and active solar collectors in an underground house.

Evaluation Level – Emphasizes logical judgement. Test items usually include such words as: compare, determine the best, judge, or support. Example: Determine the best method for tuning an eight cylinder engine. Support your answer.

Guidelines for Test Construction

Consider these learning levels as you construct an objective test. Follow these general guidelines when developing objective tests.

Avoid ambiguity

Be sure to test the objectives

Make keys for all tests

Avoid textbook or figurative language

Make questions brief and concise

Avoid tricky or misleading questions

Include a question item only once

Determine length of test by student maturity and time available

Group similar types of questions together

Make provisions for easy scoring of tests

Keep items independent of each other

Types of Objective Tests

Some of the more common types of objective tests are completion, true/false, multiple choice, and matching. They usually test lower level learning skills, but are easier to grade and weigh than essay-type question. Some guidelines for these four types of tests are listed on the following page.

[1]Benjamin S. Bloom and David R. Krathwahl, *Taxonomy of Educational Objectives, The Classification of Educational Goals, Handbook I: Cognitive Domain* (New York: David McKay Company, Inc., 1972).

A. Completion Items
   1. Do not indicate answer by length of blank.
   2. Use questions whenever possible.
   3. Place blank as near to the end as possible.
   4. Avoid giving leading clues.
   5. Omit important words only.

B. True – False Items
   1. Avoid double negatives -- state items positively. If negative statements are used, underline the negative aspects of the item.
   2. Avoid partly true and partly false statements.
   3. Statements should contain fewer than 20 words.
   4. Avoid compound sentences, weak sentence structure and verbatim statements.
   5. Approximately half of the items should be true; half should be false. Usually 50 items are considered sufficient.
   6. Use "R" (Right) and "W" (Wrong) instead of "T" or "F."
   7. Avoid difficult vocabulary, technical (unlearned) terms, and wordy phrasing.

C. Multiple Choice Items
   1. Avoid making best choice consistently short or consistently long.
   2. Use complete, not incomplete statements.
   3. Make every possible response plausible – avoid (less than 10%) irrelevant clues.
   4. The stem should introduce what is expected.
   5. Avoid repetition of words and overlapping alternatives.
   6. Include four choices for response.
   7. Avoid "All of the above" and "None of the above." Consider using "I don't know."
   8. Each question should include one central problem.

D. Matching Items
   1. Use no less than five items; no more than twelve.
   2. Keep all responses and statements in the same category.
   3. Keep each matching test on one page.
   4. Make the number of choices greater than the number of blanks.
   5. Avoid specific determiners – i.e. always, never, none, sometimes, seldom, usually.
   6. Can repeat alternatives, if necessary.

E. Essay Items
   1. Use this type of question to see if students understand functional relationships.
   2. Always indicate clearly the type of discussion desired. Restrict the responses by placing limits within the question.
   3. Call for brevity in responses.
   4. Weigh questions only on the basis of indicated responses.
   5. Develop model answers; break down the answer into specific points (or a checklist) to be used as a key.
   6. Score should be based on the number of points contained in the answer as indicated on the key.
   7. Tell student the point value of each item.

SELF-CHECK III

Evaluating Cognitive Learning

Directions: Read each statement, choose the best answer, and record it on a separate sheet of paper.

1. *Illustrate an example of appropriate office layout.* At what level of learning is this sentence testing?

   a. evaluation
   b. analysis
   c. knowledge
   d. comprehension

2. *What would you do if a robber approached your teller's window?* At what level of learning is this question testing?

   a. evaluation
   b. analysis
   c. application
   d. synthesis

3. *The form used for ordering office supplies is* _____ . At what level of learning is this statement testing?

   a. knowledge
   b. comprehension
   c. application
   d. analysis

4. *Write a plan for preparing children's playtime activities.* At what level of learning is this statement testing?

   a. synthesis
   b. evaluation
   c. analysis
   d. comprehension

5. Which of the following guidelines are considered while developing a written test?

   a. write tricky questions
   b. develop lengthy questions
   c. list the objectives
   d. use textbook language

6. When writing completion items,

   a. indicate the answer by the blank length
   b. use statements, if possible
   c. place blank near the end, if possible
   d. give leading clues

7. When writing true-false items,

   a. use statements with 20 words or less
   b. use double negatives
   c. use partly true and partly false statements
   d. use compound sentences

8. When writing multiple choice items,

   a. use incomplete statements
   b. use plausible responses
   c. use "all of the above" liberally
   d. include three choices or less

9. When writing matching items,

   a. use more than 12 items
   b. use specific determiners
   c. use one page
   d. use unlearned terms

10. When developing essay items,

    a. encourage lengthy responses
    b. develop model answers
    c. emphasize recognition/recall
    d. base score on subjective evaluation

SELF-CHECK III

Answer Key

1. D
2. C
3. A
4. A
5. C
6. C
7. A
8. B
9. C
10. B

SECTION IV

EVALUATING AFFECTIVE LEARNING

As vocational teachers, we are responsible for building into our instruction cognitive and affective learning activities. In module two, the example of the attitudes, values, and feelings of a child care worker in a specific performance objective was given. The example indicates that the child care worker must like children, enjoy helping children, show concern for their safety, and show enthusiasm.

As vocational educators, we are frequently reminded that one of the primary reasons individuals lose their jobs is due to poor job-related attitudes rather than their inability to perform psychomotor skills required by the occupation. This point has been further emphasized by employers who were asked about the traits they desired of their employees. The employers interviewed listed the following traits: enthusiasm, dependability, sense of humor; tack and courtesy; friendliness, sense of fair play, honesty, initiative, loyalty, industry and ambition, cheerfulness, and a cooperative attitude. [1]

How do you as an instructor assess job-related attitudes? Admittedly, there is no simple answer. Following are suggestions for developing an evaluation tool for assessing affective learnings.

A case study or problem solving item may be used to evaluate student achievement. Let's say that you want to find out if students recognize that their attitude toward their employer affects their performance on the job. You could use the following item.

Dialogue—Attitudes Affect the Performance of the Job [2]

Narrator: Sue is arriving for work the first day. She will work for Mr. Jennings, who owns the Blue Kitchen Restaurant which caters to downtown business people. Sue applied for the job as hostess but was hired as a waitress.

Sue's Thoughts: *This sure is a dumb name and a crummy address. I'll bet they don't have enough customers to pay well. Oh, there's the boss looking at the clock.*

Mr. Jennings: Well, Sue, I see you are getting off to a late start. I hope this won't happen again. We have to be ready for a rush crowd at eleven every day, so I must ask my workers to be on time. If you will report to Mrs. Taylor, the hostess, she will put you to work.

Sue: O.K. Mr. Jennings.

Sue's Thoughts: *You'd think he would know I have to ride the bus. I missed one by not being at the corner. I guess he is a real crab!*

Narrator: Sue is hurriedly shown how to prepare the tables and is given a menu to study. She gets a Coke and goes into the restroom to sit down.

Sue's Thoughts: *I wonder what it means "Family Service For Four"? Mrs. Tripp at school suggested that I get a menu to study yesterday, but I wasn't on the payroll yet so I didn't waste my time.*

* *

For discussion:

1. What attitudes will keep Sue from doing her best?
2. Is it all Sue's fault?
3. Suggest some ways she could have gotten this first day off to a better start.

---

[1] Arthur K. Jensen, et. al. *World of Work* (Clemson: Vocational Educational Media Center, 1971) p. 201.

[2] Julia I. Dalrymple, Phyllis K. Lowe, and Helen Y. Nelson, *Preparation for a Dual Role: Homemaker-Wage Earner* (Washington, D.C.: U. S. Department of Health, Education and Welfare, 1970) p. 39.

Evaluating students on appropriate job-related attitudes may be accomplished by devising an item checklist. Items would consist of desirable observable behaviors to be demonstrated by students in performing a task. Points may be assigned to each item by the instructor and a total grade calculated for each student.

INSTRUCTOR CHECKLIST:

ACTIVITY — Accept an orthopedically handicapped child	RATING* Acceptable	Unacceptable
1. Greeted child with a smile	1	0
2. Spoke to child in cheerful tone of voice	1	0
3. Looked directly at child while speaking	1	0
4. Showed no signs of pity (i.e. sighing or frowning)	1	0

*All activities should be performed acceptably

Total Score Possible 4

Total Score Required for task mastery 4

SUMMARY:

Attitude evaluation is inherently subjective and is measured indirectly. It is not used as the sole criterion for grade assignment; rather, it assumes an unobtrusive role in the overall evaluation policy. A rating scale is frequently used in attitude assessment.

SELF–CHECK IV

Evaluating Affective Learning

Directions: Read the following item and respond in a brief essay-type fashion on a separate sheet of paper. Explain your answer completely. Then, compare your response to the model answer at the bottom of the page.

Situation

One of your colleagues comments, "Establishing affective learning criteria is unnecessary. It is busywork because every student attitude is different and it can only be measured biasly. I don't need to do it to be an effective teacher."

Can you convince your friend of the importance of establishing criteria for evaluating student attitudes?

Model Answer

In order to evaluate a student's performance you must first establish your criteria for acceptable or unacceptable work. Evaluative criteria are not an instructor's panacea; their development requires hard work that results in specific occupational standards by which you can measure your students' achievements.

If you train students for a particular vocational cluster, you must prepare them to perform at a particular level of competency if they are to achieve a reasonable degree of success on the job. If you don't, frustration and failure are eminent.

Likewise, if you wish for a student to successfully compete for and maintain a job, you must teach proper job attitudes. Employers demand a positive work attitude and you educate only halfway when you neglect student attitude. True, it is difficult to measure; but as an instructor, you model appropriate behavior. Checklists are used to permit the student to recognize good and bad attitudes. In this way, you conduct total learning.

By setting criteria you may also judge your effectiveness as a model as acceptable or unacceptable.

SECTION V

GRADING ALTERNATIVES

Grading policy varies from one school district to another; however, school systems are required to assign grades and report these grades to students and parents. The reports may be based on a six-week or nine-week grading period. In addition, a final grade for the semester and/or year is required. Following are alternative grading approaches which may be used alone or in combination, depending upon the requirements of the school system and the system used by each individual instructor.

The following list is not definitive. Any combination of the following approaches is feasible. The "best" grading method is the one(s) that best suits the needs of your students, their parents, school administrators, and yourself. The following approaches represent a variety of ways used to score, record, and make value judgements. The end result, however, should measure what students know, how they perform, and what they feel.

1. WRITTEN TESTS

Written tests are used to determine what the student knows. These tests have been used by instructors historically for assessing student understanding.

Test items are based on recognition or recall type items. True-false, matching, and multiple-choice are examples of recognition type items. The student is expected to recognize the correct answers when given two or more alternative answers. Recall type items include completion, listing, and essay items. The student is not given alternatives but must answer based on the information he/she possesses.

When selecting the type of written test to use, it is important to consider the levels of learning, the students' abilities, and time constraints. Written tests are traditionally norm-referenced.

Philosophically speaking, performance-based instruction does not require written tests; however, realistically speaking, written tests are being used and should not necessarily be abandoned.

See Sample 1 for an example of a written test.

2. PASS-FAIL/SATISFACTORY OR UNSATISFACTORY

A grading system of this type is used when the quality of work falls into two distinct categories. Either the work is acceptable or it is not acceptable. In performance-based instruction, task mastery implies that the student must perform the work at a level which would be acceptable on the job.

See Sample 2 for an example of a checklist.

3. NUMBER OF PERFORMANCE OBJECTIVES COMPLETED

This method requires the instructor to determine the total number of objectives completed by all students within an identified grading period. Then calculate the average number completed. Grades could be determined based on the number of completions. This system necessitates student evaluation based on what she/he has done relative to other students (norm-referenced). Peer tutoring is another opportunity for awarding credit because extra points may be given to students who act as peer tutors.

See Sample 3 for an example of this method.

4. POINT ASSIGNMENT TO PROCESS/PRODUCT CHECKLISTS

The instructor may assign points to each item on a process or product checklist. By calculating the total number of points individual students have earned in a grading period, a class mean can be established and grades assigned. The student is evaluated in terms of how well he/she did relative to other students in the class. This is not necessarily desirable in a PBVE program, but is offered as an alternative.

See Sample 4 for an example of a point checklist.

5. COMBINATION APPROACH

A grading system based on a job-related attitude checklist, performance/product checklists, and written test score for a specified grading period is an alternative. Weight may be assigned to each. For example, the performance/product may account for 80% of the grade, the written test 15% , and the job-related attitudes 5%.

A percentage may also be allowed for peer tutoring. One possible suggestion for assigning weight to peer tutoring may be to give the peer tutor 1/2 credit for a task when he/she has completed a peer tutoring session. Two peer tutoring sessions would result in credit for a complete task. Caution should be advised, however, in order to prevent over-tutoring by advanced students. Any student who has mastered a task and is willing to tutor may do so. The assignment of percentages, however, is entirely up to the individual instructor.

Weighting requires the instructor to assign arbitrary values to selected groups of objectives. For example, the duty area of Performing Cash Register Duties could receive 70% of the semester grade; the attitude area of Greeting Customers could receive 20% of the grade, and a Written Test could receive 10% of the semester grade.

SUMMARY

As you can see, evaluation methods vary with each teaching/learning circumstance. These approaches are described briefly for your consideration. You are the final determiner of the evaluation procedure. Remember the method of evaluation used depends upon your:

course objectives
students' needs and abilities
levels of learning
personal judgements
time constraints

SAMPLE 1

Written Tests

DIRECTIONS:

Read each statement below and choose the item which best completes the sentence. Use a separate sheet of paper, number your paper from 1 to 15. Write either "a," "b," "c," or "d" beside each number.

1. A deposit is the amount a customer
   a. withdraws from an account
   b. adds to an account
   c. receives for his weekly pay
   d. borrows from a friend

2. The total amount being deposited is shown on
   a. a deposit ticket
   b. a cash/receipt form
   c. an invoice
   d. a cash in-out ticket

3. A deposit ticket should show
   a. just the amount of currency being deposited
   b. only the coins being deposited
   c. only the checks being deposited
   d. separately the amount of coins, currency, and checks being deposited

4. If the deposit ticket does not have enough space for listing the checks, you may
   a. list just the total of all checks
   b. use space on the back of the deposit ticket
   c. ask the teller to total the check amounts
   d. draw additional lines on the front side of the deposit ticket

SAMPLE 2

INSTRUCTOR CHECKLIST:

ACTIVITY Repair signs on golf course	RATING*	
	Acceptable	Unacceptable
1. A survey of the area was made to determine the extent and nature of repairs needed.		
2. Tools, materials and equipment selected were adequate and appropriate for making the repairs.		
3. Repairs met the necessary standards of quality and were accomplished within the allocated time period.		
4. Any trash and debris accumulated in making repairs was disposed of in a satisfactory manner.		
5. Tools and equipment used were cleaned as necessary and returned to appropriate places after the job was completed.		
6. Unused materials were properly stored for future use.		

* All activities should be performed acceptably

SAMPLE 3

STUDENT	TASKS COMPLETED	GRADE
John Black	1, 2, 3, 4, 5	A
Jane Hall	1, 2, 3, 4	B
Tom Winters	1, 2, 3, 4	B
Sandra Connors	1, 2, 3	C
Dave Dwight	1, 2	D
Sara Covington	1, 2, 3, 4	B

SAMPLE 4

INSTRUCTOR CHECKLIST

	ACTIVITY — Apply herbicides (control of aquatic weeds in lakes and/or streams)	RATING*		POINTS
		Acceptable	Unacceptable	
1.	Checked boat out carefully and followed all other preparatory safety precautions for doing the job.			2
2.	Followed systematic procedure in applying aquatic herbicides.			3
3.	Used sprayer and other equipment effectively.			3
4.	Cleaned and serviced equipment thoroughly following use and prior to storage.			1
5.	Disposed of aquatic weeds as they died and performed well in other follow-up operations.			1

*All activities should be performed acceptably

SELF-CHECK V

Grading Alternatives

Directions: Below are five alternative grading methods and descriptions. Match the alternatives with their description by recording the appropriate letter on a separate sheet of paper.

DESCRIPTIONS	GRADING ALTERNATIVES
1. grades students on recall type items	a. Written
2. grades student work as acceptable or unacceptable	b. Performance objective completed
3. grades students on job attitudes, completed performance or product, and written test	c. Points assigned to instructor's checklist
4. grades student on a specific amount of work within a specific amount of time	d. Pass/Fail
5. grades student on a "weighted" checklist	e. Combination

SELF-CHECK V

Answer Key

1. a, 2. d, 3. e, 4. b, 5. c

SECTION VI

RECORDING RESULTS

As an instructor moves toward a performance-based approach in his/her instructional program, a system of record keeping becomes very important. In order to know the status and progress of each student an accurate and detailed system should be developed.

As a student completes a criterion-referenced measure and demonstrates mastery, a record should be made immediately. Inasmuch as we are human, we cannot wait to record student progress at the end of the week. Records must be kept up-to-date daily. The following suggested information could be included in a student progress record:

Student's complete planned program of objectives

Date student began work on an objective

Date objective was accomplished

Final rating of performance if appropriate

A wall chart indicating progress of each student in the class may be a helpful tool for the instructor as well as serving as a motivational tool for students. Wall charts are used to summarize the number of tasks completed by a student in a particular program. Typically, the tasks or objectives are listed across the top of a chart, and the students are listed down the left side. When a student masters a task, it is "checked off" by the instructor.

An individual proficiency record may be kept for each student. This record includes the tasks and a rating scale. The instructor rates the student's performance.

Individual progress charts have been used successfully by many vocational instructors. The individualized progress charts are kept up-to-date by the student. The charts may be filed in the classroom for easy access by the individual student or teacher.

Upon completion of a program, a student may be given a record of achievement. This record documents the performance levels achieved by the individual student.

Following are examples of the wall chart, individual proficiency chart, progress chart, and the record of achievement.

WALL CHART OF STUDENT PROGRESS

Course: Tractor Mechanics

STUDENT NAME	Adjust clutch free play	Service a dry clutch	Service a shoe clutch	Service a magnetic clutch	Service an overrunning clutch	Service a wet clutch	Change hydraulic filters	Clean & flush hydraulic system	Drain & refill hydraulic system	Maintain hydraulic system	Operate & analyze with hydraulic tester
John Black	✓	✓	✓								
Jack Allen		✓	✓	✓	✓	✓					
Paula Carpenter			✓		✓						
Willy Wilson	✓	✓	✓	✓	✓		✓		✓		
Freddie Fender						✓	✓	✓			
Betty Bender							✓	✓	✓	✓	✓

✓ Task completed

SKILLS PROFICIENCY RATING

OCCUPATION CARPENTRY

NAME _____ VOCATIONAL CENTER _____

ADDRESS _____ PHONE _____

TOWN, STATE, ZIP _____ DATE _____

EVALUATOR _____ TITLE _____

Rating Levels: A – Accomplished
U – Attempted, but not accomplished
N/A – Not attempted, not applicable

CA-1	Communication Through Drawing	CA-45	Framing Roof Openings and Roof Saddles
CA-2	Scaling and Dimensioning	CA-46	Installing Roof Sheathing
CA-3	Using Abbreviations and Notations on Drawings	CA-47	Flashing Roofs
CA-4	Identifying Drawing Symbols	CA-48	Installing Shingles
CA-5	Sketching Freehand	CA-49	Building Cornices
CA-6	Setting Up and Adjusting Layout Instruments	CA-50	Installing Wood Siding
CA-7	Sharpening Twist Drills and Auger Bits	CA-51	Installing Interior Dry Walls
CA-8	Sharpening and Caring for Saw Blades	CA-52	Installing Paneling
CA-9	Sharpening and Caring for Chisels and Plane Irons	CA-53	Cutting and Installing Moulding
CA-10	Boring and Cutting Holes	CA-54	Cutting Irregular Shapes
CA-11	Driving and Setting Nails	CA-55	Illustrating and Sketching
CA-12	Laying Out Building Site with Transit and Level	CA-56	Interpreting Codes and Specifications
CA-13	Using Plot Plan Data	CA-57	Making Special Applications and Revisions
CA-14	Locating Property and Boundary Lines	CA-58	Identifying Dimensions and Reading Modular Layouts
CA-15	Locating and Squaring the Building	CA-59	Itemizing and Checking Material Orders
CA-16	Leveling with a Carpenter's Level	CA-60	Calculating Labor and Material Costs
CA-17	Cutting with Portable Saw	CA-61	Interpreting Instructions
CA-18	Planing Stock with Jointer and Planer	CA-62	Establishing Grades and Excavation Lines
CA-19	Identifying and Caring for Lumber	CA-63	Excavating, Leveling and Filling
CA-20	Following Job Safety Requirements	CA-64	Planing with Hand Planes
CA-21	Measuring and Lay Out	CA-65	Planing Stock with Power Hand Plane
CA-22	Cutting with Table Saw	CA-66	Shaping and Routing with Portable Electric Router
CA-23	Maintaining Portable Power Tools	CA-67	Shaping with Wood Shaper
CA-24	Cutting Stock with Radial Arm Saw	CA-68	Making Miters
CA-25	Calculating Concrete and Concrete Blocks	CA-69	Making Joints
CA-26	Designing Footings	CA-70	Gluing Stock
CA-27	Setting Anchor Bolts	CA-71	Sanding and Preparing Surfaces
CA-28	Identifying Framing Components	CA-72	Constructing Footing Forms
CA-29	Building Saw Horses	CA-73	Constructing Wall Forms
CA-30	Installing Girders and Beams	CA-74	Aligning and Bracing Form Walls
CA-31	Installing Columns and Sills	CA-75	Installing Special Openings in Concrete Forms
CA-32	Installing Floor Joists	CA-76	Setting Screeds and Expansions
CA-33	Installing Bridging and Sub-floors	CA-77	Installing Column and Pier Forms
CA-34	Framing Wall openings	CA-78	Constructing Stair Forms
CA-35	Framing Exterior Walls	CA-79	Installing Vapor Barriers and Water Seals
CA-36	Installing Wall Sheathing	CA-80	Cleaning and Repair, Forms
CA-37	Framing Partition Walls	CA-81	Basic Stair Framing
CA-38	Framing Special Partitions	CA-82	Framing for Masonry Construction
CA-39	Installing a Ceiling Frame	CA-83	Building and Erecting Scaffolds
CA-40	Planning a Roof	CA-84	Installing Post and Beam Framing
CA-41	Framing Equal Pitch Roofs	CA-85	Framing Roof with an Unequal Pitch
CA-42	Building Roof Trusses	CA-86	Lay Out and Install Special Roofs
CA-43	Framing Gables	CA-87	Laying Out, Cutting, and Installing Tail and Jack Rafters
CA-44	Installing Purlins, Collar Ties and Kneewalls		

INDIVIDUALIZED PROGRESS CHARTS FOR CONSUMER AND HOMEMAKING EDUCATION COURSES

Suggested Use of Charts

Duplicate an adequate number of charts so that each student will have a copy. The student will be responsible for keeping his/her individual chart up-to-date. The charts may be filed in the classroom where they will be readily accessible to the students and teacher or the charts may be kept in the student's personal school file.

At the beginning of the course, the teacher will identify the skills and/or competencies the student will be expected to achieve for basic and advanced units and semester courses. In some areas alternative skills and competencies are listed. The teacher will identify the number of alternative skills and competencies to be completed by the student. In an effort to relate to needs of individual students, additional competencies and skills may be added. The student selects the alternatives she/he wishes to achieve and may contract with the teacher for the number he/she will attain.

As a skill or competency is attained, the student records the date under the appropriate quarter column.

Student_____

CONSUMER AND HOMEMAKING EDUCATION PROGRESS CHART

Foods and Nutrition Resource Unit
Low Cost Meals

Competencies	Quarter Achieved 1	2	3	4
1. List principles of meal planning.				
2. List major differences between the low, medium, and high cost food plans.				
3. identify three factors affecting food prices.				
4. List three practices a food shopper can follow to improve shopping practices.				
5. Describe the contribution protein makes to health and well being.				
6. Differentiate between complete and incomplete protein.				
7. Given a menu for one day, calculate the total amount of protein for the day and determine if the recommended amount for an individual of your age and sex has been met.				
8. Plan low cost meals. Evaluate meals using a class developed check list.				
9. List three ways to economize in preparing the main dish.				
10. Plan and prepare a low cost oven meal.				
11. Plan and prepare a low cost meal using a small appliance or the top of the range.				

ACHIEVEMENT RECORD

_____

ACHIEVED THE PERFORMANCE LEVELS ACKNOWLEDGED ON THE REVERSE SIDE(S) FOR THE PROGRAM OF

_____

AND IS THEREFORE ISSUED THIS

DOCUMENT OF EVIDENCE

GIVEN THIS _____ **DAY OF** _____ **, 19** _____

_____

INSTITUTION

_____ _____

INSTRUCTOR **ADMINISTRATOR**

PROFICIENCY RATING

Scale Value	Definition:
A –	Accomplished
U –	Attempted, but not accomplished
N/A –	Not attempted, not applicable

For additional information concerning the student's training, please request a transcript form:

Instructor	Initials
1.	
2.	
3.	
4.	
5.	
6.	

Task No.	Task	Final Rating	Date	Inst. Initial
	CARPENTRY			
1.	Communication Through Drawing			
2.	Scaling and Dimensioning			
3.	Using Abbreviations and Notations on Drawing			
4.	Identifying Drawing Symbols			
5.	Sketching Freehand			
6.	Setting Up and Adjusting Layout Instruments			
7.	Sharpening Twist Drills and Auger Bits			
8.	Sharpening and Caring for Saw Blades			
9.	Sharpening and Caring for Chisels and Plane Irons			
10.	Boring and Cutting Holes			
11.	Driving and Setting Nails			
12.	Laying Out Building Site with Transit and Level			
13	Using Plot Plan Data			
14	Locating Property and Boundary Lines			
15	Locating and Squaring the Building			
16	Leveling with a Carpenter's Level			
17	Cutting with Portable Saw			
18	Planing Stock with Jointer and Planer			
19	Identifying and Caring for Lumber			
20	Following Job Safety Requirements			

Task No.	Task	Final Rating	Date	Inst. Initial
21	Measuring and Lay Out			
22	Cutting with Table Saw			
23	Maintaining Portable Power Tools			
24	Cutting Stock with Radial Arm Saw			
25	Calculating Concrete and Concrete Blocks			
26	Designing Footings			
27	Setting Anchor Bolts			
28	Identifying Framing Components			
29	Building Saw Horses			
30	Installing Girders and Beams			
31	Installing Columns and Sills			
32	Installing Floor Joists			
33	Installing Bridging and Sub-floors			
34	Framing Wall openings			
35	Framing Exterior Walls			
36	Installing Wall Sheathing			
37	Framing Partition Walls			
38	Framing Special Partitions			
39	Installing a Ceiling Frame			
40	Planning a Roof			
41	Framing Equal Pitch Roofs			
42	Building Roof Trusses			

Achievement Record (continued)

Task No.	Task	Final Rating	Date	Inst. Initials
43	Framing Gables			
44	Installing Purlins, Collar Ties and Kneewalls			
45	Framing Roof Openings and Roof Saddles			
46	Installing Roof Sheathing			
47	Flashing Roofs			
48	Installing Shingles			
49	Building Cornices			
50	Installing Wood Siding			
51	Installing Interior Dry Walls			
52.	Installing Paneling			
53	Cutting and Installing Moulding			
54	Cutting Irregular Shapes			
55	Illustrating and Sketching			
56	Interpreting Codes and Specifications			

OVERALL RATING

In the instructor's opinion, this student's overall rating is stated below:

	Satisfactory	Needs Improvement	Instructor's Initials
Begins assigned work promptly.			
Works without wasted efforts and resources.			
Follows established safety procedures without being reminded.			
Works cooperatively and courteously with others.			
Responds to evaluations and criticism with willingness to improve.			
Seeks out additional work and responsibilities.			

CHECK-OUT ACTIVITIES

Inform your instructor that you are ready to be tested. You will be provided with a copy of a multiple choice test and an answer sheet. Record your answers on the answer sheet and return both the test and the answer sheet to the instructor.